

**Remarks**

Please note that the amendments included herein utilize the revised amendment format permitted by the U.S.P.T.O. (See 1267 OG 106 (2/25/03)) Accordingly, no clean version nor marked up version of the changes is provided. Claim 10 has been amended. Claims 1-23 are pending.

**Rejections under 35 U.S.C. § 112**

Claim 10 was rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention. Applicants respectfully traverse this rejection.

Claim 10 has been amended to correct a typographical error and to provide proper antecedent basis. The term "the increased impedance" has been amended to "an increased impedance". Applicants submit that no new matter has been added. Consequently, Applicants respectfully request that the section 112 rejection be withdrawn.

**Rejections under 35 U.S.C. § 103**

Claims 1-17 were rejected under 103 U.S.C. 103(a) as being unpatentable over Moslehi et al. (U.S. Patent No. 5,217,559) in view of Alan Notman (U.S. Patent No. 4,311,671). This rejection is respectfully traversed.

As is well known, to support a section 103 rejection, the cited prior art must disclose or suggest all of the elements of the claimed invention. Applicants respectfully submit that the cited prior art references individually or in combination do not disclose or suggest all of the features as claimed and therefore fail to make a prima facie case of obviousness. Of the

many differences between the cited prior art and the claimed inventions, only a few differences will be discussed for the sake of brevity.

Applicants submit that the Office is attempting to place the proverbial square peg into a round hole. The Office appears to equate both the fluid exit port as claimed in claim 1 and the output port as claimed in claim 12 with the process environment space 152 as taught by Moslehi. The process environment space 152 is an area where a wafer is processed. The process environment space 152 is not a fluid exit port or an output port as claimed. The Office then appears to equate the top horizontal wall as claimed in claim 1 with what is termed a module 126 and process plasma tube outlet 122 by Moslehi. Applicants submit that neither of the module 126 and the outlet 122 as taught by Moslehi has a top horizontal wall and a bottom horizontal wall as claimed herein. In fact, Applicants submit that the outlet 122 only has vertical walls and the module 126 has only a bottom horizontal wall. Therefore, Applicants respectfully submit that Moslehi does not teach a structure with a top horizontal wall.

The Office further attempts to equate the gas control inlet 156 as taught by Moslehi with the gas inlet port as claimed in claim 1 and the at least one fluid input as claimed in claim 12. This attempt is traversed. Applicant submits that the gas control inlet 156 of Moslehi inputs gas into the process environment space 152 which is an area where a wafer is processed. Moslehi teaches the mixing of the plasma with reactants in the processing chamber itself to process a wafer. In contrast, the claimed invention of claim 1 includes a gas inlet port in at least one of the separating spacings. Also in contrast to Moslehi, the claimed invention of claim 12 includes at least one fluid input that can supply fluid into at least one of the first chamber and the second chamber. Therefore, Applicants submit that Moslehi does not disclose or suggest usage of the gas inlet port as claimed.

As admitted by the Office, Moslehi does not teach usage of a misaligned holes or orifices. In an attempt to remedy this deficiency, the Office attempts to utilized the teaches of Notman by suggesting that "it would be obvious to those of ordinary skill in the art to optimize the operation of the claimed invention." It appears that the Office is attempting to use the concept of optimization as described in M.P.E.P. § 2144.05. Applicant submits that the Office attempts to mix apples with oranges. As described in M.P.E.P. § 2144.05 which includes all of the cites that the Office has included, section 2144.05 pertains to optimization of ranges. Therefore, Applicant submits that this application of § 2144.05 is inappropriate. Even if this section pertained to the present circumstance, a particular parameter must first be recognized as a result-effective variable before the determination of the optimum or workable ranges of the variable might be characterized. In re Antonie, 559 F.2d 618, 620, 195 USPQ 6, 8 (CCPA 1977) (see M.P.E.P § 2144.05). Applicants submit that such a recognition has not been made. In addition, Applicants submit that the prior art must suggest the desirability of the claimed invention. It is also a well established axiom that the fact that the references can be combined or modified is not sufficient to establish a prima facie obviousness unless the prior art also suggests the desirability of the combination. Applicants submit that the cited prior art references do not discuss or suggest the desirability of modification of their teachings to generate the claimed inventions. Applicants respectfully submit that combining teachings because they can be combined or combining the references with 20/20 hindsight does not support a section 103 rejection.

Moreover, the proposed modification cannot change the principle of operation of a reference. The apparatus as taught by Moslehi inputs reactive gases directly into the process environment space 152 where the wafer is located. Therefore, the apparatus as taught by Moslehi, even if modified in accordance to the suggestion by the Office, only allows the plasma to initiate processing of the wafer by mixing with the reactive gases

within the process environment space 152 where the wafer is located. Such an apparatus does not disclose or suggest the same features of the claimed inventions as claimed in claim 1 and claim 12. Consequently, Applicants submit that the cited prior art references do not disclose or suggest all of the features of claim 1 and claim 12 and therefore fail to make a prima facie case of obviousness. Applicants therefore respectfully request that the section 103 rejection with respect to claims 1 and 12 be withdrawn.

Claims 18-23 were rejected under 35 U.S.C. 103(a) as being unpatentable over Moslehi and Notman in view of James W. Rudolph (U.S. Patent No. 5,480,678). This rejection is respectfully traversed.

Applicants submit that much of the remarks traversing the section 103 rejection above with respect to claims 1 and 12 also apply in this section. In addition, the Office appears to suggest that the Moslehi and the Notman references teach the claimed structure of claim 18 without the perforations in the hollow tube and that somehow Rudolph would have suggested to one skilled in the art to perforate the hollow tube. The suggestions made by the Office are traversed.

Applicants submit that Moslehi, Notman, and Rudolph do not disclosed the features as recited in claim 18 and therefore fail to make a prima facie case of obviousness. The Office appears to equate the wafer processing chamber 152 with the housing as claimed. The wafer processing chamber 152 is the location where the wafer is processed and does not include both an input port for supplying plasma and an output port as included in claim 18. Furthermore, as discussed above in the remarks related to claims 1 and 12, Moslehi and Notman do not disclose or suggest usage of the fluid input. Applicants submit that Rudolph does not remedy this deficiency.

In addition, the Office admits that Moslehi does not teach usage of a perforated hollow tube but attempts to utilize the teachings of Notman to make up for this deficiency. Notman is directed to a reactor to synthesize methanol or ammonia. Applicants respectfully

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submit that Notman does not disclose a hollow tube being contained in the internal region within the housing where the hollow tube has a plurality of orifices and is defined by a wall that extends between the first end and the second end. The Office further suggests that Rudolph teaches usage of the perforation of hollow tubes and that the tubing in Notman may be modified to have perforations. Applicants submit that the cited prior art does not disclose or suggest the desirability of modifying the teachings of Notman to perforate the hollow tube. Consequently, Applicants submit that the Office has failed to make a *prima facie* showing of obviousness with respect to claim 18.

Moreover, Applicants submit that one skilled in the art would not look toward one reference (Moslehi) which uses UV light to process semiconductor wafers and another reference (Notman) which teaches synthesis of methanol or ammonia with yet another reference (Rudolph) that teaches the heating of gases to generate the claimed inventions. Applicants submit that none of the cited prior art references discuss or suggest the desirability of modification of the teachings the references to generate the claimed inventions. In fact, none of the cited prior art even discusses usage of SCOPes to thoroughly mix reactive gases with plasma. As a result, Applicant respectfully submits that motivation to combine as defined by the M.P.E.P. does not exist in the cited prior art references. In addition, Applicants respectfully submit that the cited prior art references (even if combined) do not include all of the features of the claimed inventions. Therefore, due to the above reasons, Applicants submit that the Office does not raise a *prima facie* case of section 103 obviousness against independent claim 18.

Applicants submit that the dependent claims are allowable for at least the same reasons as independent claims 1, 12, and 18.

Applicants respectfully submit that all of the pending claims are in condition for allowance. Accordingly, a notice of allowance is respectfully requested. If the Examiner has

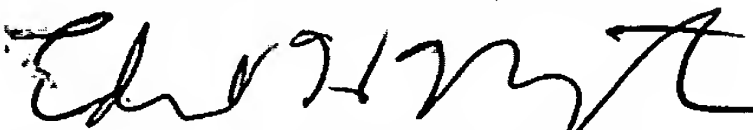
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any questions concerning the present paper, the Examiner is kindly requested to contact the undersigned at (408) 749-6900, ext. 6911. If any fees are due in connection with filing this amendment, the Commissioner is authorized to charge Deposit Account No. 50-0805 (Order No. NOVEP015). A duplicate copy of the transmittal is enclosed for this purpose.

Respectfully submitted,  
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